

WHAT IS CLAIMED IS:

1. An insulated gate transistor having a gate electrode on a substrate with a gate insulator interposed therebetween, wherein the gate insulator composed of silicon and oxygen contains both nitrogen atoms and halogen atoms.
2. The insulated gate transistor according to Claim 1, wherein nitrogen atom concentration of the gate insulator is not less than $1 \times 10^{20} \text{ cm}^{-3}$.
3. The insulated gate transistor according to Claim 1, wherein a source-and-drain region of the insulated gate transistor is stacked to upper than a channel portion.
4. The insulated gate transistor according to Claim 1, wherein the insulated gate transistor comprises a floating gate electrode and a control gate electrode provided on the floating gate electrode with an interlayer insulator interposed therebetween.
5. The insulated gate transistor according to Claim 1, wherein the halogen atom is fluorine.
6. The insulated gate transistor according to Claim 1, wherein film thickness of the gate insulator is not less than 0.5 nm and not more than 5 nm.
7. Process for fabricating an insulated gate transistor having a gate electrode on a substrate with a gate insulator interposed therebetween, comprising: a step

for forming silicon oxide containing nitrogen atoms as the gate insulator; and a step for introducing a halogen element to the silicon oxide containing the nitrogen atoms.

8. The process for fabricating an insulated gate transistor according to Claim 7, wherein the step for forming silicon oxide containing nitrogen atoms comprises a step of forming silicon oxide and a step of nitriding the silicon oxide.

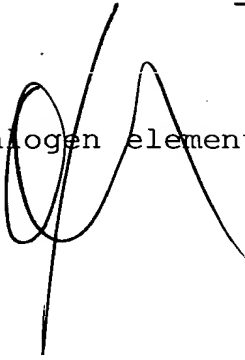
9. The process for fabricating an insulated gate transistor according to Claim 8, wherein the step of nitriding the silicon oxide containing nitrogen atoms is a nitriding step with ammonia gas or nitrogen monoxide gas.

10. The process for fabricating an insulated gate transistor according to Claim 8, wherein the step of forming the silicon oxide containing nitrogen atoms is a step of forming the silicon oxide by using nitrogen monoxide.

11. The process for fabricating an insulated gate transistor according to Claim 8, wherein the step of forming the silicon oxide containing nitrogen atoms is a step of forming silicon oxide with dinitrogen monoxide and then nitriding the silicon oxide with nitrogen monoxide or ammonia gas.

12. The process for fabricating an insulated gate transistor according to Claim 7, wherein the step of

introducing a halogen element is a step of ion implantation
of fluorine.



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